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Garrick

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(54) **SLIDE GUITAR**

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(72) Inventor: **Walter Neil Garrick**, Thomasville, AL (US)

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(21) Appl. No.: **14/545,335**

(22) Filed: **Apr. 23, 2015**

Related U.S. Application Data

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(51) **Int. Cl.**
G10D 3/12 (2006.01)
G10D 3/04 (2006.01)

(52) **U.S. Cl.**
CPC ... ***G10D 3/12*** (2013.01); ***G10D 3/04*** (2013.01)

(58) **Field of Classification Search**
CPC G10D 1/085; G10D 3/06; G10D 3/00; G10D 1/00; G10D 3/143
USPC 84/267, 297, 290
See application file for complete search history.

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7,557,281 B1 * 7/2009 Campling G10D 3/06 84/293
2006/0144209 A1 * 7/2006 Pieper G10D 3/06 84/293

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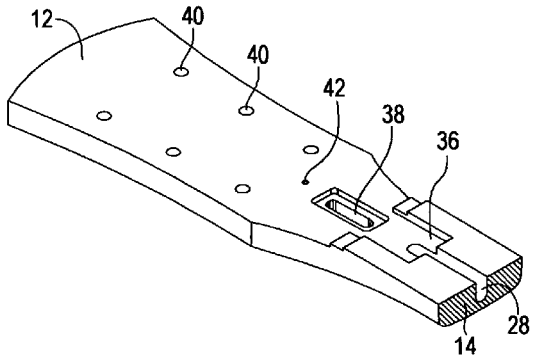
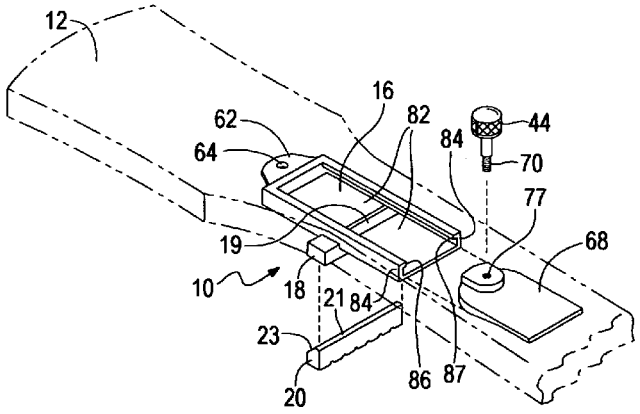
(74) *Attorney, Agent, or Firm* — George L. Williamson

(57) **ABSTRACT**

Slide guitar for providing various improvements and advantages including instant accurate string height adjustments simultaneously at the nut and bridge. The slide guitar has a marked adjustment knob adjacent a graduated scale under the headstock to visually determine with repeated mathematical accuracy the exact distance between the bottom of the strings and the top of the first fret as a point of reference. The improved string musical instrument includes a leveling head embedded into portions of the headstock and neck wherein the leveling head contains a slide selector having a sloped surface for contacting the nut combined with a dual bridge for instantly changing the instrument's string height and bridge type. The slide guitar instantly changes from a conventional type guitar to a steel type guitar creating an improved variable string action slide guitar.

32 Claims, 5 Drawing Sheets





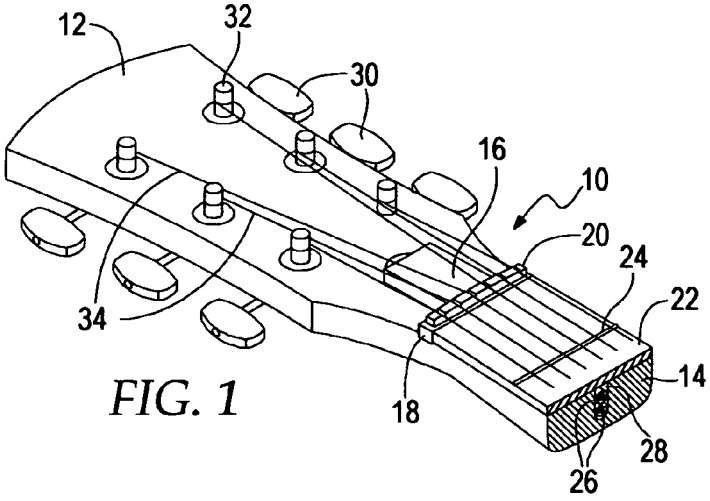


FIG. 1

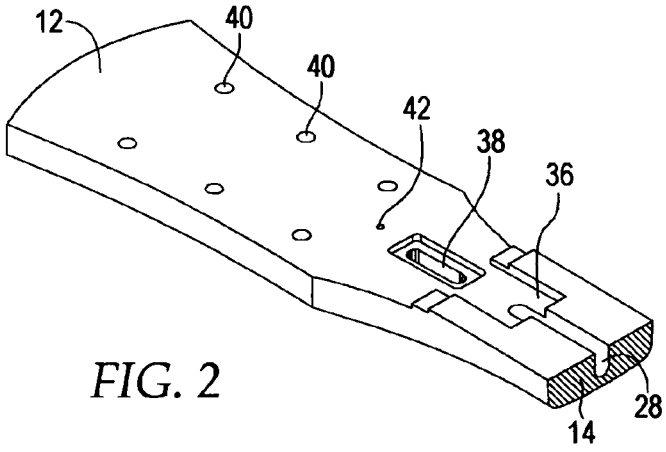


FIG. 2

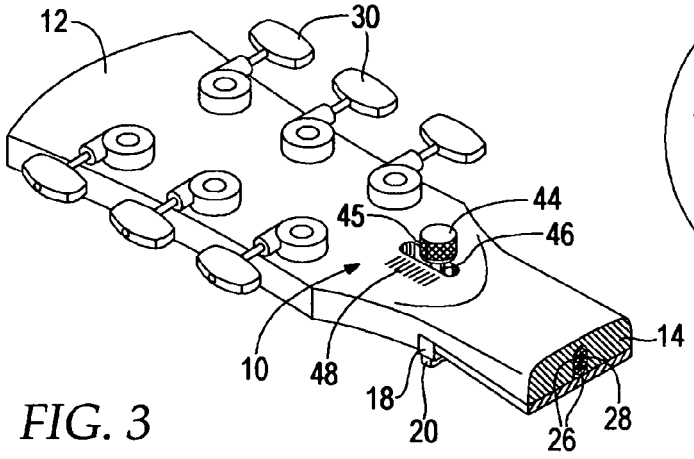


FIG. 3

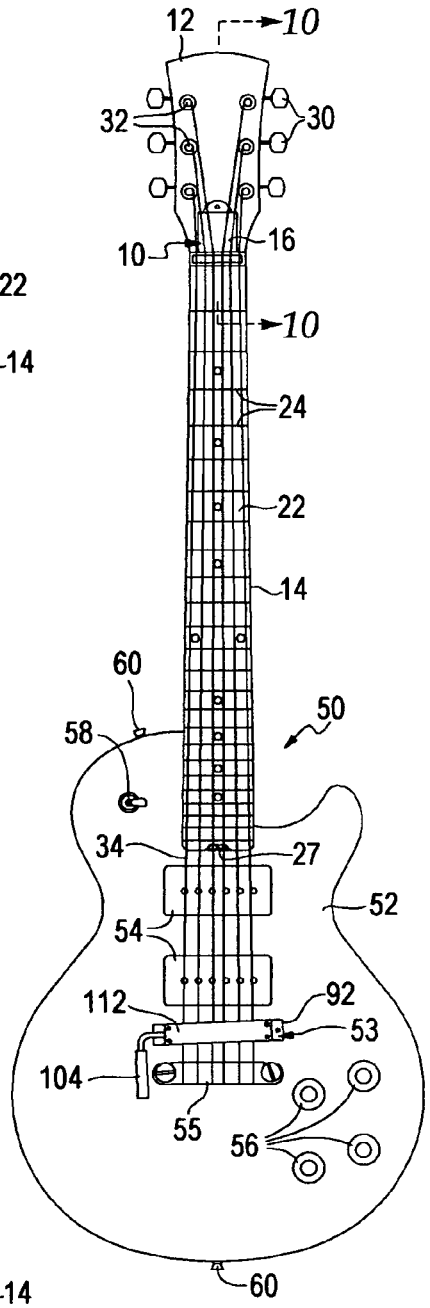
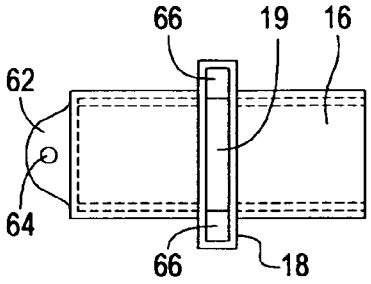


FIG. 4



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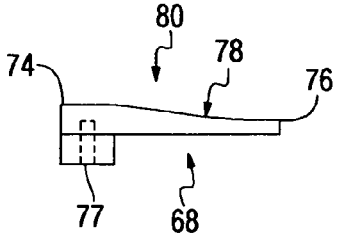

FIG. 6

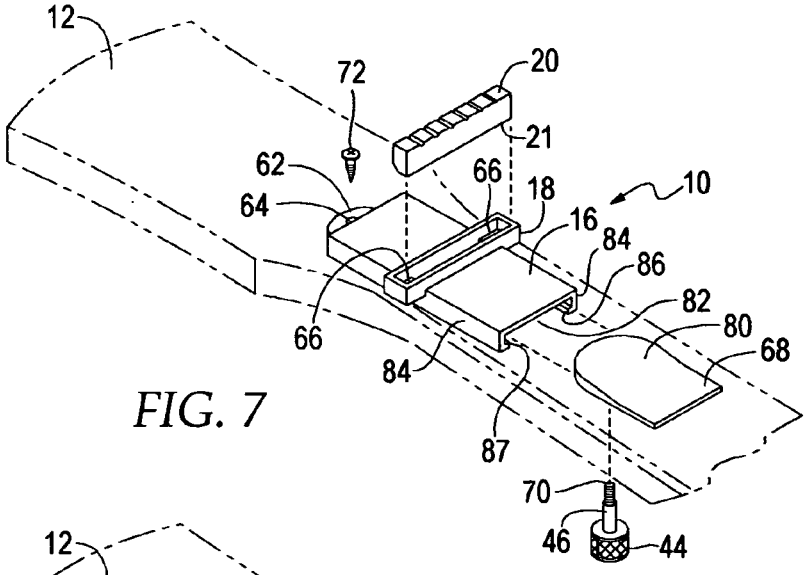

FIG. 7

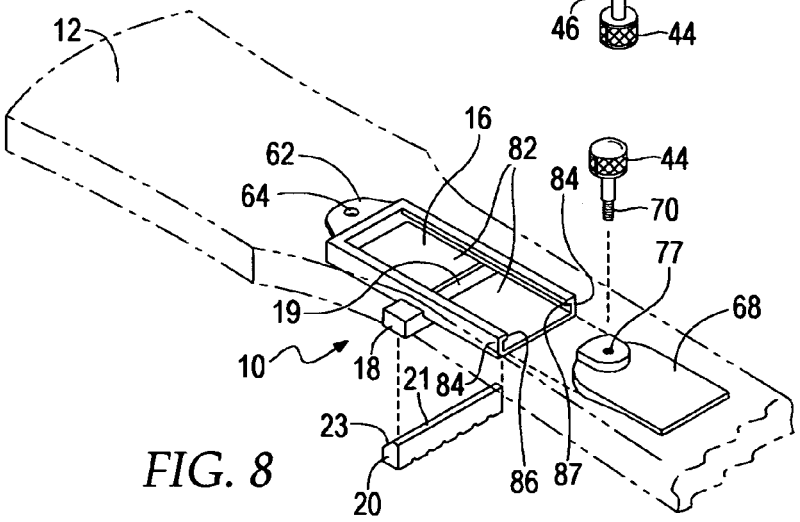

FIG. 8

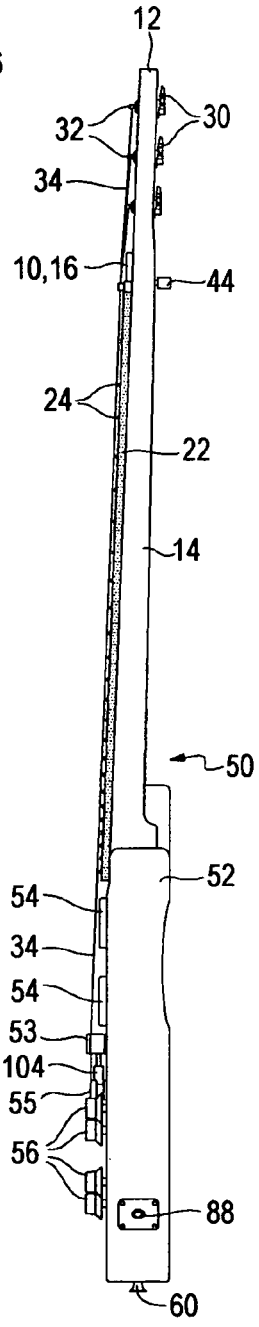

FIG. 9

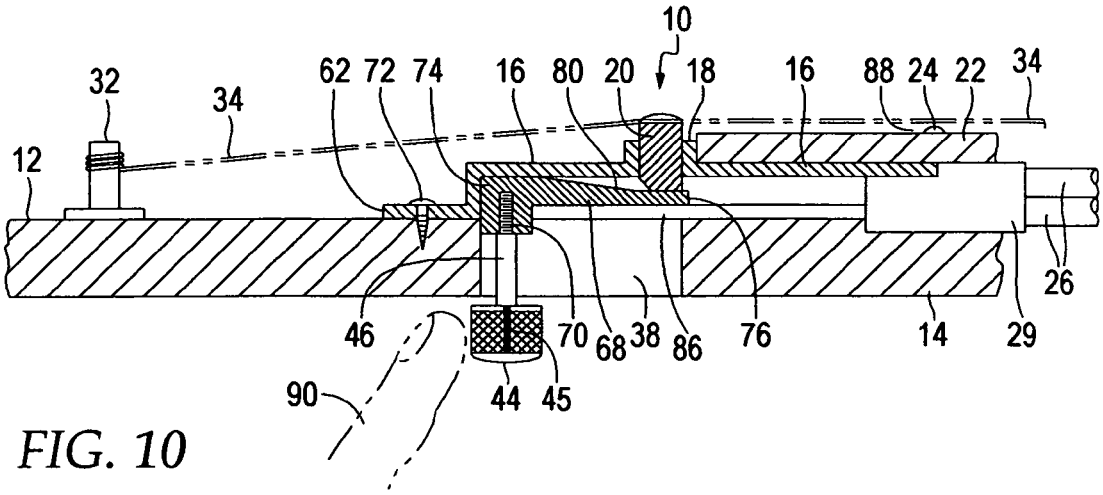

FIG. 10

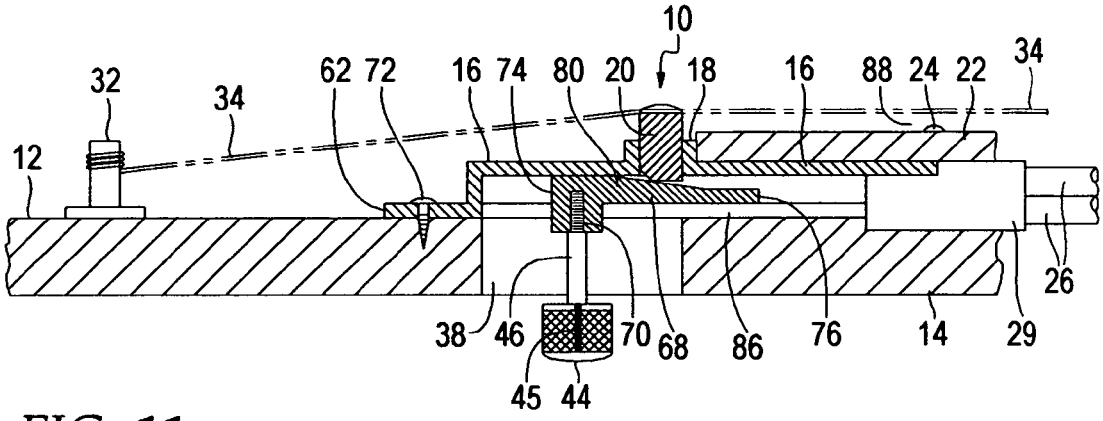

FIG. 11

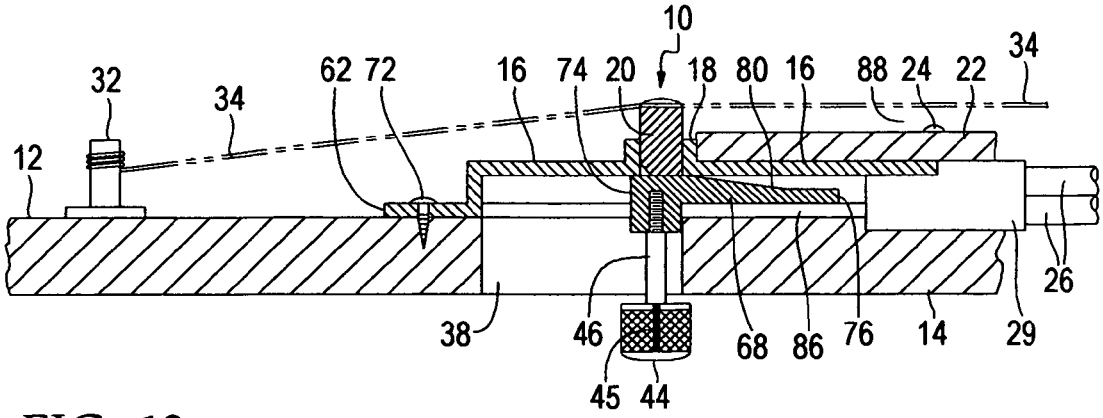

FIG. 12

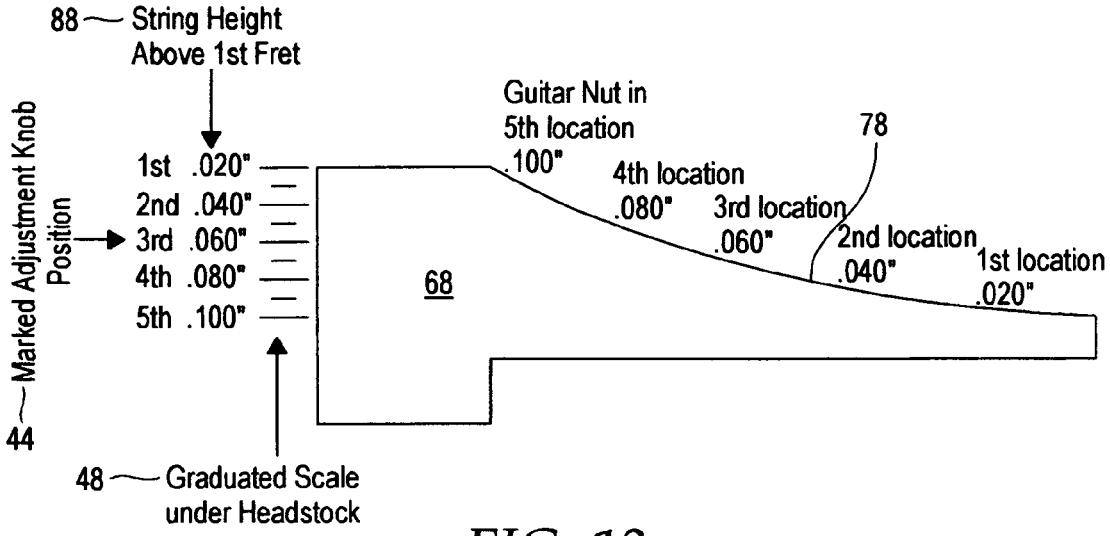
88 String Height Above 1st Fret
1st .020"
2nd .040"
3rd .060"
4th .080"
5th .100"
Marked Adjustment Knob Position
44
48 Graduated Scale under Headstock
68
Guitar Nut in 5th location .100"
4th location .080"
3rd location .060"
2nd location .040"
1st location .020"
78

FIG. 13

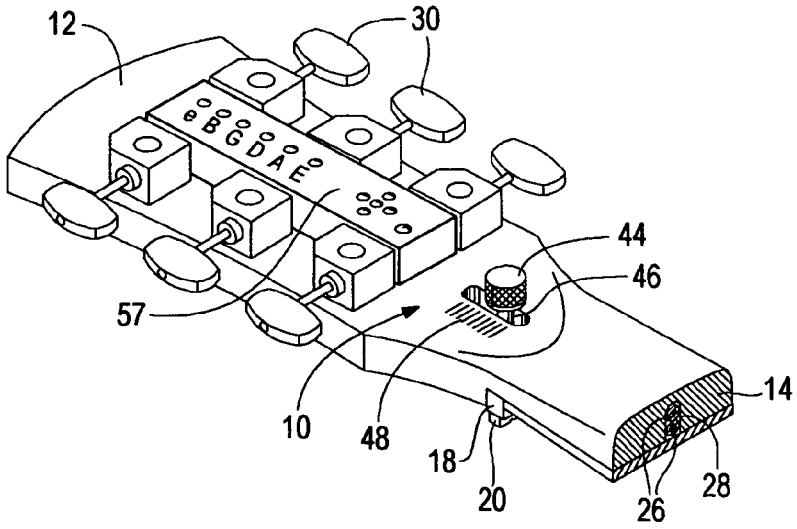
12
30
E A D G B e
44
46
57
14
10
48
18
20
26
28

FIG. 14

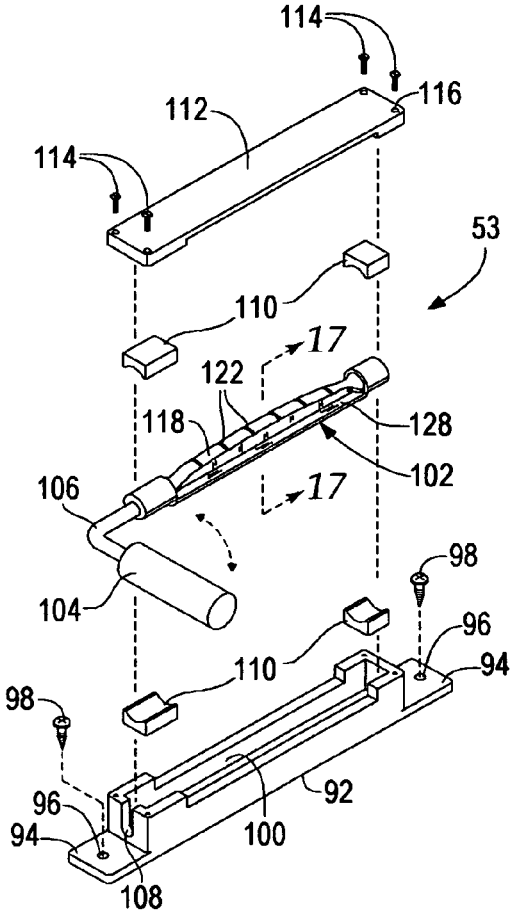

FIG. 15

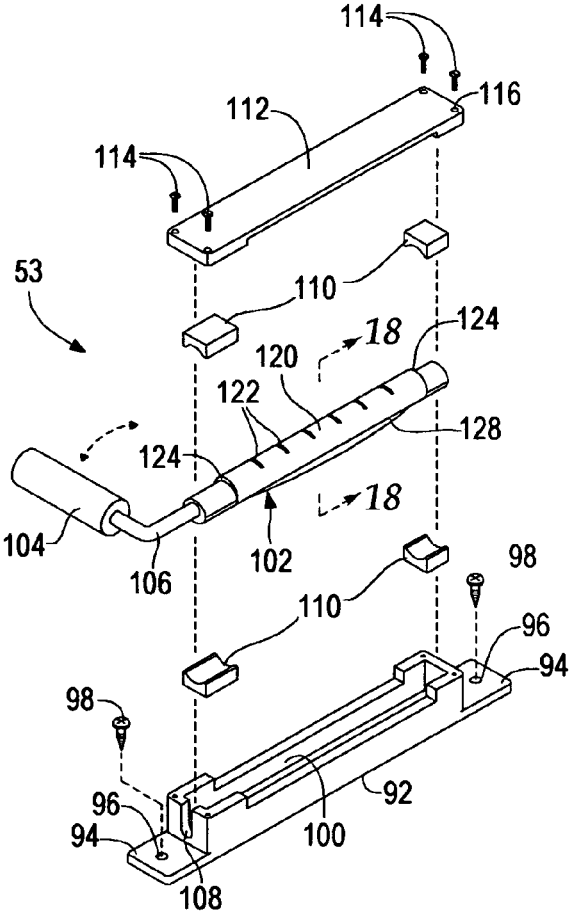

FIG. 16

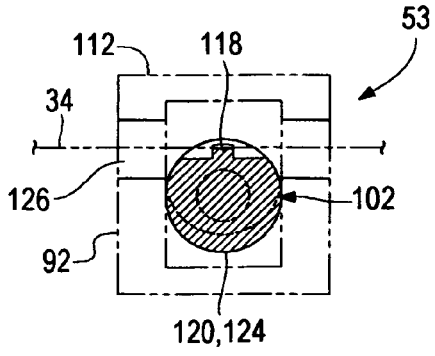

FIG. 17

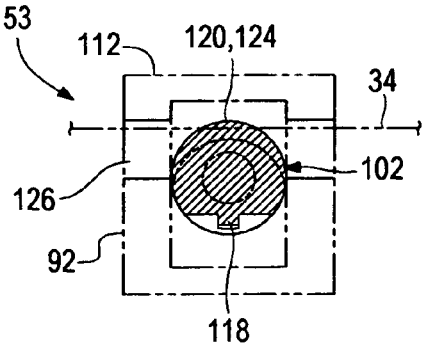

FIG. 18

SLIDE GUITAR

RELATED APPLICATIONS

This application claims benefit of U.S. Provisional Patent Application Ser. No. 61/995,945 filed on Apr. 24, 2014.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to improvements in stringed musical instruments of the guitar type and, more particularly, is concerned with a slide guitar with slide guitar selector and dual bridge, including method and apparatus for instantly adjusting the bridge type and string height at the nut and bridge simultaneously to create a variable string action slide guitar.

2. Description of the Related Art

Stringed musical instruments of the past use adjustable nuts and bridges that have been described in the related art; however, none of the related art devices disclose the unique features of the present invention.

In U.S. Pat. No. 8,294,012 dated Oct. 23, 2012, Garrick disclosed a method and apparatus for adjusting the nut of stringed instruments. In U.S. Pat. No. 7,179,975 dated Feb. 20, 2007, Feiten, et al., disclosed a method and apparatus for fully adjusting and providing tempered intonation for stringed instruments. In U.S. Pat. No. 3,971,286 dated Jul. 27, 1976, Borell disclosed a guitar string supporting device. In U.S. Pat. No. 1,571,118 dated Jan. 26, 1926, Hattie disclosed a nut having means for raising the strings from the fingerboard over the frets of a stringed instrument. In U.S. Pat. No. 4,304,163 dated Dec. 8, 1981, Siminoff disclosed an adjustable nut for stringed musical instruments. In U.S. Pat. No. 4,064,780 dated Dec. 27, 1977, Bond disclosed a stringed instrument and a fret board having a saw-tooth surface profile and height adjustable strings. In U.S. Pat. No. 2,309,082 dated Jan. 26, 1943, Smith, et al., disclosed a guitar and guitar nut. In U.S. Pat. No. 1,338,583 dated Apr. 27, 1920, Neft disclosed a nut for guitars or the like.

While these devices may be suitable for the purposes for which they were designed, they would not be suitable for the purposes of the present invention as hereinafter described. As will be shown by way of explanation and drawings, the present invention works in a novel manner and differently from the related art.

SUMMARY OF THE PRESENT INVENTION

The present invention discloses an improved stringed musical instrument for instantly adjusting the height of all the strings at the nut and bridge above the fingerboard to create a variable string action slide guitar. The slide guitar includes a leveling head or housing embedded into portions of the headstock and neck of the stringed instrument. The leveling head contains a slide selector or sliding member having a sloped surface for contacting the nut. When the slide selector is moved to a rearward position the nut and strings are lowered and when the slide selector is moved to a forward position the nut and strings are raised. This slide guitar utilizes the first fret's string height as a point of reference. The slide guitar provides repeatable string action adjustments above the fingerboard with mathematical precision. The slide guitar also includes a cylindrical bridge shaft that has a conventional type radiused guitar bridge located at +180 degrees with a flat conventional steel type guitar bridge located at −180 degrees combined together to provide one dual bridge. When the conventional type bridge is used the strings are in a lowered position and the instrument becomes a conventional type guitar. When the steel type guitar bridge is in use the strings are in a raised position and the instrument becomes a steel type guitar. The slide guitar also includes a marked adjustment knob adjacent a graduated scale disposed on the underside of the headstock for improved visual string height reference. By way of example only, the player of the slide guitar can use the thumb or finger to move the marked adjustment knob connected to the slide selector located adjacent to a graduated scale that is divided incrementally by 10 spaced marks so that the linear distance between each space on the graduated scale is equivalent to 0.010 inches of vertical string distance traveled up or down as the slide selector moves back and forth inside the leveling head. This allows the player to visually adjust instantly the string heights using the first fret as a point of reference between the top of the fret and the bottom of the strings of this improved musical instrument with exact mathematical precision.

The main object of the slide guitar is to provide an improved stringed musical instrument of the slide guitar type having these improvements and advantages for adjusting the string height at the nut and bridge of the instrument with two different bridge types combined into one allowing the guitar player to alternate between a conventional type guitar and a steel type guitar using only one stringed instrument.

A further object of the slide guitar is to enable the player to make multiple string height adjustments on a stringed musical instrument with precise repeatability from an exact lower string height to an exact higher string height so that the instrument can be played in different string actions without changing the instrument being played. A further object of the slide guitar is to adjust the string height of all the strings of the instrument simultaneously using the string height above the first fret as a point of reference. A further object of the side guitar is to allow the string instrument to be playable when the strings are in a lower position or when the strings are in an upper position and for positions intermediate of those upper and lower positions. A further object of the slide guitar is to allow the instrument to be played as a lead or rhythm guitar and then as a slide string action style guitar. A further object of the slide guitar is to provide a method for instantly adjusting string height at the nut and bridge which is easy to use and which can be relatively inexpensively manufactured. A further object of the slide guitar is for precisely adjusting various string heights of the stringed musical instrument which can be accurately changed and visually read while the instrument is being played

A further object of the slide guitar is to keep the strings equally spaced apart across the traditional fingerboard to create a variable string action slide guitar. A further object of the slide guitar is to provide repeatable string action levels over and over across the fingerboard of the stringed musical instrument. Another object of the present invention is to allow the musician the ability to adjust the string action instantly at the nut or bridge independently of the other. Another objective of the present invention is to allow the musician to use the marked adjustment knob in tandem with automatic tuning systems so that the player can use the fretting hand's thumb or fingers to push or pull the marked adjustment knob and tuning button to instantly change the instrument's string height and tuning. A further object of the present invention is to use the other string picking hand's thumb or fingers at the same time to flip the dual bridge level over to instantly change the type bridge and bridge string height while playing the instrument. A further object of the present invention is to match different string heights and different tunings for different styles of

music such as instantly changing from a low string action lead blues style in E to a high string action steel guitar style in open E.

One of the main advantages of the slide guitar is that the same stringed musical instrument can be used as three different guitars because when the strings are in the lowest position and are closest to the fingerboard the instrument can be used as a lead guitar, and with the strings in the highest position above the fingerboard the instrument can be used as a slide guitar. When the strings are in between the highest and lowest position the instrument can be used as a rhythm guitar.

Another advantage of the present invention, especially when compared to string instruments of the past, is its speed and accuracy combined with the fact that all the instrument's strings are accurately adjusted simultaneously. The improved string instrument is designed to increase the versatility of a stringed musical instrument by providing increased speed and repeated visual accuracy of multiple string elevations allowing for fast manual tuning changes when the player has to manually retune or automatic tuning changes for playing a different string height with different guitar styles while performing live or in the studio.

Another advantage of the slide guitar is that the improved string instrument is ambidextrous. Therefore, the musician can use the left or right hand fretting thumb or finger to pull up or down on a single marked adjustment knob to instantly adjust the level of the strings and push a button to change tuning while using the left or right picking hand to change the bridge type and string height at the bridge up or down across the entire instrument's fingerboard. Another advantage of the slide guitar is the instrument can match the desired playing style and string height, whether it is low string height lead style, moderate string height rhythm style or high string height slide style guitar.

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. While an improved electric slide guitar is shown it is not to be construed that the present invention is limited. On the contrary, these improvements that create this variable string action musical instrument could improve many different types of stringed musical instruments. For example, conventional acoustic guitars, steel resonator guitars, and acoustic electric guitars to mention just a few along with other types of stringed musical instruments as well. In the accompanying drawings, like reference characters designate the same or similar parts throughout the several views. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is best defined by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawings in which:

FIG. **1** is a perspective view of the front side of the slide guitar headstock and neck with the slide guitar selector in operative connection.

FIG. **2** is a perspective view of the headstock and neck of the slide guitar showing a cutout for receiving the slide guitar selector.

FIG. **3** is a perspective view of the underside of the headstock and neck of the slide guitar showing the slide guitar selector in operative connection.

FIG. **4** is a plan view of the front of the slide guitar showing the slide guitar selector and dual bridge in operative connection.

FIG. **5** is a plan view of portions of the slide guitar selector.

FIG. **6** is a side elevation view of the slide selector.

FIG. **7** is an exploded perspective view of the topside of the slide guitar selector.

FIG. **8** is an exploded perspective view of the underside of the slide guitar headstock with slide guitar selector.

FIG. **9** is a side view of a the present invention showing the slide guitar selector and dual bridge in operative connection.

FIGS. **10**, **11** and **12** are cross sectional views of the slide guitar selector taken from FIG. **4** as indicated for FIG. **10**.

FIG. **13** is an illustration showing the mathematical relationship between the graduated scale on the bottom of the slide guitar headstock and the sloped surface of the slide selector.

FIG. **14** is a perspective view of the underside of the headstock and neck of the slide guitar showing an automatic tuning system with slide guitar selector and graduated scale in operative connection.

FIGS. **15-16** are exploded perspective views of the dual bridge of the present invention.

FIGS. **17-18** are cross sectional views of the dual bridge taken from FIGS. **15-16** as indicated.

LIST OF REFERENCE NUMERALS

With regard to reference numerals used, the following numbering is used throughout the drawings.

10 slide guitar selector
12 slide guitar headstock
14 slide guitar neck
16 slide guitar leveling head or housing
18 receptacle
19 cutout
20 nut
21 bottom of nut
22 fingerboard
23 angled surface
24 first fret or frets
26 truss rod
27 truss rod adjustment nut
28 cavity for truss rod
29 mounting block
30 tuning key
32 tuning peg
34 guitar string or strings
36 cutout
38 slot for shaft
40 aperture for tuning keys
42 aperture for fastener
44 marked adjustment knob or member
45 marker
46 shaft
48 graduated scale
50 slide guitar or present invention
52 body
53 dual bridge
54 pickups
55 tailpiece

56 tone/volume control knobs
57 automatic tuning systems
58 3 way selector switch
60 strap buttons
62 lip
64 apertures for fasteners
66 seat for nut
68 slide selector or sliding member
70 threaded end
72 fastener
74 rear end portion
76 front end portion
77 aperture
78 sloping surface
80 upper surface
82 channel
84 sidewall of channel
86 right track
87 left track
88 height of strings
90 finger or thumb
92 base
94 mounting flange
96 aperture
98 bridge fastener
100 receptacle
102 bridge shaft
104 handle
106 arm
108 slot
110 bushing
112 bridge cover
114 cover fastener
116 aperture
118 conventional guitar type bridge
120 steel guitar type bridge
122 notch
124 cam lobe area
126 opening for strings
128 lip area

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

The following discussion describes in detail at least one embodiment of the present invention. This discussion should not be construed, however, as limiting the present invention to the particular embodiments described herein since practitioners skilled in the art will recognize numerous other embodiments as well. For a definition of the complete scope of the invention the reader is directed to the appended claims. FIGS. **1** through **18** disclose the improved slide guitar for instantly adjusting string height at the nut and the bridge with the ability to instantly change bridge types from conventional guitar to steel guitar type and is generally indicated by reference number **50**.

Turning to FIG. **1**, therein is shown a perspective view of portions of the present invention **50** (not shown see FIG. **4**) showing the slide guitar selector **10** mounted into the slide guitar headstock **12** and neck **14** of the instrument showing the top portion of the leveling head **16** which forms a housing for the slide guitar selector. The leveling head **16** has a receptacle **18** along with the nut **20** mounted into the receptacle and additionally showing the fingerboard **22** having a first fret **24** disposed along the fingerboard and showing a pair of truss rods **26** disposed in a cavity **28** in the neck for receiving the truss rods. While dual truss rods **26** are shown by way of illustration, other types of truss rods including a single truss rod could also be used with the present invention **50**. Also shown are tuning keys **30** having tuning pegs **32** along with the guitar strings **34** of the present invention **50** resting in grooves cut in the top of nut **20** in the conventional manner. Nut **20** is substantially perpendicular to the longitudinal axis of neck **14**.

Turning to FIG. **2**, therein is shown a stripped away view of the topside of the slide guitar headstock **12** and neck **14** having a cutout **36** disposed therein for receiving the leveling head **16** (not shown, see FIG. **5**) of the slide guitar selector **10** (not shown, see FIG. **7**) and including the headstock **12** and cutout **36** for receiving the slide guitar selector **10** along with a shaft slot **38** for receiving a shaft **46** (not shown, see FIG. **3**) of the slide guitar **50** (as best shown in FIG. **4**) and having a plurality of apertures **40** for receiving the tuning pegs **32** along with an aperture **42** for receiving a fastener **72** (not shown, see FIG. **7**) to secure the top rear end of the leveling head **16** (not shown, see FIG. **7**) onto the headstock **12** of the slide guitar **50**. Cutout **36** is complimentary sized and shaped to receive the leveling head **16** therein. It can be seen that cutout **36** is partly in a portion of the headstock **12** and partly in a portion of the neck **14** under the forward end of the fingerboard **22** (not shown see FIG. **1**). Also shown is cavity **28** cut into the neck for receiving the truss rods **26** (not shown, see FIG. **3**) therein.

Turning to FIG. **3**, therein is shown the underside or bottom side of the slide guitar headstock **12** along with the tuning keys **30**, the neck **14**, truss rods **26**, cavity **28** for receiving the truss rods **26** along with a small edge portion of the receptacle **18** and nut **20** of the slide guitar selector **10** along with a marked adjustment knob or member **44** for the string height adjustments connected to the shaft **46** which is used to move a sliding member referred to as the slide selector **68** (not shown, see FIG. **6**) contained inside the leveling head **16** (not shown, see FIG. **7**) of the slide guitar selector **10** (not shown, see FIG. **7**) back and forth within the leveling head **16**. Also shown is a graduated scale **48** which is used for visually referencing the height of the strings above the slide guitar's first fret **24** (not shown, see FIG. **1**) with marker **45** on the marked adjustment knob or member **44** with respect to slide guitar headstock **12**. As the marked adjustment knob **44** slides back and forth along the graduated scale **48** underneath the headstock **12** a musician playing the instrument can quickly and easily visually determine the elevation of the slide guitar strings **34** (not shown, see FIG. **1**) by reference to marker **45** and graduated scale **48**.

Turning to FIG. **4**, therein is shown a plan view of the front of the slide guitar **50** having the slide guitar selector **10** mounted therein along with the body portion **52** having a neck **14** extending between the body **52** and the headstock **12** showing the tuning keys **30** and tuning pegs **32** mounted on the headstock **12** along with the leveling head **16** of the slide guitar selector **10** along with the frets **24** spaced apart along the fingerboard **22** and having guitar strings **34** running from the tailpiece **55** to the dual bridge **53** to the tuning pegs **32** on the tuning keys **30**. Also shown are pickups **54** along with multiple control knobs **56** for controlling volume/tone with a three-way selector switch **58** thereon for selecting pickup combinations or the like. Also shown are front and rear strap buttons **60** along with a truss rod adjustment nut **27** of the spoke type that may be used to adjust neck **14** relief if considered necessary. Also shown are the base **92**, handle **104**, and bridge cover **112** of the dual bridge **53**.

Turning to FIG. **5**, therein is shown a plan view of the leveling head **16** of the slide guitar selector having a lip **62** on its rear end along with an aperture **64** for placement of a

fastener **72** (not shown, see FIG. **7**) therein and including a receptacle **18** having seats **66** on each lateral side forming a lower stop upon which the nut **20** (not shown, see FIG. **7**) may rest if the slide selector **68** (not shown, see FIG. **6**) is removed from leveling head **16**. The leveling head **16** has a cutout **19** passing entirely through the receptacle **18** from top to bottom which provides an opening for the top surface **80** of slide selector **68** (not shown, see FIG. **6**) to contact the bottom of the nut **21** (not shown, see FIG. **8**).

Turning to FIG. **6**, therein is shown a side view of the slide selector **68** being thicker on rear end portion **74** and thinner on front end portion **76** and having a sloping surface **78** disposed on its upper surface **80** between its rear **74** and front end portions **76**. The precision machined and polished upper surface **80** contacts and smoothly slides along the bottom end **21** of the nut **20** as shown in FIGS. **10-12**. Upper surface **80** may be straight or curved depending on the design choice of the builder. Also shown is aperture **77** for receiving a threaded end **70** of shaft **46** (not shown see FIG. **8**). By way of example only, the front end portion **76** of the slide selector **68** may be about 0.025 inches thick and the rear end portion **74** may be about 0.125 inches thick providing a maximum string height elevation difference of 0.1 inch, however, many other thicknesses may be used depending on the design choice of the instrument builder. Also it should be noted the slide selector **68** should be manufactured out of a rigid material possessing a low coefficient of friction such as highly polished metals or for example plastics such as DELRIN a type of plastic with a very low coefficient of friction.

Turning to FIG. **7**, therein is shown the topside exploded view of the slide guitar selector **10** showing the leveling head **16** in which the slide selector **68** slides back and forth underneath the receptacle **18** designed for receiving a nut **20** therein. Also shown is lip **62** disposed on the rear of the leveling head **16** along with aperture **64** for receiving a fastener **72** for securing the rearward portion of the leveling head **16** to the headstock **12** of the guitar. Also shown is the knurled marked adjustment knob **44** for the various string height adjustments having a shaft **46** thereon wherein the tip of its shaft **46** is threaded at **70** for being screwed into mating aperture **77** on the bottom of the slide selector **68** (bottom not shown, see FIG. **8**). Seats **66** are also barely visible. Leveling head **16** has a downwardly disposed somewhat U-shaped channel **82** having opposite downwardly disposed flanged sidewalls **84** each having its lower edge turned inwardly toward each other to form a right track **86** and left track **87** upon which the bottom of the slide selector **68** rests as the slide selector **68** moves back and forth in channel **82**. The bottom **21** of the nut **20** contacts the top surface **80** of the slide selector **68** as the nut **20** is pressed downwardly by the pressure of the tension of the guitar strings **34** on the nut **20** so that the nut and all of the guitar strings **34** (not shown see FIG. **4**) of the instrument are simultaneously and uniformly raised or lowered from one side of the nut **20** to the other side of the nut **20** as the top surface **80** of the slide selector contacts the nut **20** as the slide selector moves back and forth along the right track **86** and left track **87**. The center line of motion of the slide selector **68** is substantially parallel to the longitudinal axis of the slide guitar neck **14** of the slide guitar **50** (not shown see FIG. **9**) as it slides back and forth.

Turning to FIG. **8**, therein is shown the lower side exploded view of the slide guitar selector **10** showing the leveling head **16** having a channel-like space **82** therein for receiving the slide selector **68** which slides back and forth in channel **82** along with the marked adjustment knob **44** for the string height adjustments which has a threaded end **70** for mating into a threaded aperture **77** on lower surface of slide selector **68**. Also shown is the lip **62** and aperture **64** therein. Also shown is the nut **20** which rests in receptacle **18** of the leveling head **16** and an angled surface **23** on the back lower end of the nut for making contact with the slide selector **68** smoother. Channel **82**, in which slide selector **68** travels, extends substantially the entire length of leveling head or housing **16** and is substantially parallel to the longitudinal axis of the neck of the slide guitar **50** (not shown see FIG. **9**) and the direction of travel of slide selector **68**, and, substantially perpendicular to nut **20**. Other previously disclosed elements may also be shown.

Turning to FIG. **9**, therein is shown a side view of the slide guitar **50** having the slide guitar selector **10** mounted therein showing the body portion **52** having a neck **14** extended between the body and the slide guitar headstock **12** showing the tuning keys **30** and tuning pegs **32** mounted on the headstock **12** along with the leveling head **16** and adjustment knob **44** for the string height adjustments along with the frets **24** spaced apart along the fingerboard **22** and having the guitar strings **34** running from the tailpiece **55** to the dual bridge **53** to the tuning pegs **32** on the tuning keys **30**. Also shown are other previously disclosed elements along with a cord jack **88** and strap button **60**.

Turning to FIGS. **10** through **12**, therein is shown the slide guitar selector **10** mounted into the slide guitar headstock **12** and neck **14** of the slide guitar **50** (not shown see FIG. **4**) showing the receptacle **18** of the leveling head **16** with the nut **20** mounted therein along with the slide selector **68** and its marked adjustment knob **44**, shaft **46**, and threaded end **70** of the marked adjustment knob **44** disposed in the lower portion of the slide selector **68** with marker **45** being visible along with the wall of shaft slot **38**. A digit, being a finger or thumb **90** of a left or right hand of a user is also shown in phantom line. Right track **86** is shown underneath slide selector **68**. Also shown is the lip **62** of the leveling head **16** along with the fastener **72** being shown. Also shown is a tuning peg **32** along with a string **34** mounted onto the slide guitar headstock **12** with the string passing over the top of nut **20** in a conventional manner. Also shown are the truss rods **26** with mounting block **29** mounted into the neck **14** along with a fingerboard **22** having a first fret **24** mounted thereon showing the front portion of the leveling head **16** mounted underneath the fingerboard and extending into the forward portion of the neck. In FIG. **10**, it can be seen that the slide selector **68** is in the most rearward position in leveling head **16** so that the upper surface **80** of its thin front end portion **76** allows the nut **20** to rest thereon so that the strings are in a lowered position when the slide selector is in its most rearward position so that the distance of the strings above the first fret **24** is very small as shown at **88**. In FIG. **12**, it can be seen that the slide selector **68** is in its most forward position in leveling head **16** so that the upper surface **80** of its thicker rear end portion **74** allows the nut **20** to rest thereon so that the distance of the strings are in a raised position when the slide selector **68** is in its most forward position so that the distance of the strings above the first fret **24** is very great as shown at **88**. In FIG. **11**, it can be seen that the slide selector **68** is in an intermediate position in the leveling head **16** so that the upper surface **80** of its sloping portion **78** allows the nut **20** to rest thereon so that the strings are in an intermediate position when the slide selector **68** is in its intermediate position so that the distance of the strings above the first fret **24** is moderate as shown at **88**. The slide selector **68** could be disposed at many positions along the track **86** of leveling head **16** so that the string height **34** above the first fret **24** could be accurately positioned repeatedly at many different user selected heights on the slide guitar **50** (not shown see FIG. **9**).

Turning to FIG. **13**, therein is shown an illustration, provided for example only, showing a side elevation view of slide selector **68**, similar to FIG. **6**, and provides a visual reference of slide guitar **50** nut locations and string height elevations **88** above the first fret **24** (see FIGS. **10-12**) as indicated by the position of the marked adjustment knob **44** adjacent to the graduated scale **48** (see FIG. **3**). This demonstrates the mathematical relationship between the graduated scale **48** on the slide guitar headstock **12** of the stringed slide guitar **50** and the sloped surface **78** of the slide selector **68** (see FIG. **6**) used for mathematically determining the musical instrument's exact string **34** height above the first fret **24** (see FIG. **1**) at various positions of the marked adjustment knob **44** along the graduated scale **48** (see FIG. **3**). The graph-like representation in FIG. **13** shows the Marked Adjustment Knob located at the 3rd position adjacent to the Graduated Scale, therefore, the String Height above the 1st Fret would be 0.060 inches. If one moved the Marked Adjustment Knob to the 2nd position, the String Height above the 1st Fret would be 0.040 inches. The teachings of this illustration allow for numerous string height adjustments which can be repeated with pin point accuracy. Sloped surface **78** is shown curved in FIG. **13** but may be planar as shown in FIG. **6**.

Turning to FIG. **14**, therein is shown the underside of the slide guitar headstock **12** as previously disclosed and described relative to FIG. **3** and in addition an automatic tuning system **57** is shown mounted on the underside of the headstock **12** proximate the adjustment knob **44** and graduated scale **48**. The automatic tuning system **57** is one of the conventional commercially available types which tunes the strings of a stringed instrument automatically.

Turning to FIGS. **15-16**, therein are shown exploded perspective views of the dual bridge **53** as previously disclosed relative to FIG. **4**. Dual bridge **53** includes a base **92** with mounting flange **94** on each end for being mounted onto the front of the slide guitar **50**, as shown in FIG. **4**, by using fasteners **98** placed through apertures **96**. Base **92** has an elongated receptacle **100** thereon which extends generally transversely to the strings, which receptacle contains an elongated rotatable bridge shaft **102** which has a handle **104** connected through arm **106** on one end so that handle **104** can be used to rotate the bridge shaft **102** as indicated by the direction arrow.

FIG. **15** shows bridge shaft **102** rotated to a first position wherein a conventional type guitar bridge **118** is shown on the upper side for supporting the strings in a lowered position (see item **34**, FIG. **17**), and, FIG. **16** shows bridge shaft **102** rotated to a second position wherein a steel type guitar bridge **120** is shown on the upper side for supporting the strings in an elevated position (see item **34**, FIG. **18**). Both surfaces **118** and **120** have spaced notches **122** thereon for receiving the strings therein (see item **34**, FIGS. **17**, **18**). Also, conventional type guitar bridge **118** is expected to have at least a slight crown shape (sometimes referred to as radiused) as is illustrated in FIG. **15** wherein the steel type guitar bridge **120** is substantially flat. In FIG. **16**, it can be seen that the increased elevation of the strings caused by the steel type guitar bridge **120** is provided by a cam lobe-like area **124**, i.e., an eccentric shape, which is a raised area for raising the strings constructed on each end of the bridge shaft **102** so that the cam lobe area **124** is on the upper end when the bridge shaft **102** is rotated to the second position as shown in FIG. **16**. Also shown is top **112** which is attached onto base **92** using fastener **114** along with upper and lower bushings **110** which captures opposite ends of the bridge shaft **102** inside the receptacle **100** so that the bridge shaft can be easily rotated therein and snugly secured inside the receptacle. Also, arm **106** rests in slot **108** in one end of the receptacle **100**. Lip area **128** is also shown for defining the conventional type guitar bridge **118**.

Turning to FIGS. **17-18**, therein are shown cross-sectional views of the dual bridge **53** taken approximately through the mid-point of the bridge shaft **102** as shown in FIGS. **15-16**, respectively. FIG. **17** shows the conventional type guitar bridge **118** on the upper side in the first position supporting strings **34** with the cam lobe area **124** on the lower side. FIG. **18** shows the steel type guitar bridge **120** and cam lobe area **124** rotated to the upper side in the second position supporting strings **34** in an elevated position. Note that strings **34** pass through the dual bridge **53** from a front to a rear side by means of an opening **126** disposed between the bridge cover **112** and base **92** of the dual bridge **53**.

I claim:

1. A stringed musical instrument comprising an apparatus for adjusting string height of the stringed instrument, the stringed instrument having a body, a headstock, and a neck interconnecting the headstock and the body, and a nut on the neck for providing support for the strings, comprising:

a) an assembly, said assembly capable of being mounted in the neck, said assembly being configured to raise and lower strings of the stringed instrument;

b) said assembly comprising a housing, said housing having a channel therein;

c) a receptacle disposed on an upper surface of said housing, said receptacle for receiving a nut;

d) a sliding member disposed within said housing having an upper sloped surface on which a bottom of said nut can rest, wherein said sliding member is movable within said channel;

e) an adjustment member attached to a bottom of said sliding member; and,

f) said adjustment member being movable rearwardly and forwardly along with said sliding member to raise and lower said nut riding on said sloped surface to raise and lower the strings for producing different string actions of the stringed instrument.

2. A stringed musical instrument comprising apparatus of claim **1**, further comprising a cutout in a portion of the neck, and, said assembly being disposed in said cutout of the stringed musical instrument.

3. A method for adjusting the string height of a stringed musical instrument, the stringed musical instrument having a body, a headstock, and a neck interconnecting the headstock and the body, and a nut on the neck for providing support for the strings, further comprising the steps of:

a) providing an assembly capable of being mounted in the neck, the assembly being configured to raise and lower strings of the stringed instrument;

b) providing a housing in the assembly, the housing having a channel therein;

c) providing a receptacle on an upper surface of the housing for receiving a nut;

d) providing a sliding member within the housing having an upper sloped surface on which a bottom of the nut can rest, wherein the sliding member is movable within the channel;

e) attaching an adjustment member to a bottom of the sliding member; and,

f) moving the adjustment member rearwardly and forwardly along with the sliding member to raise and lower the nut riding on the sloped surface to raise and lower the strings for producing different string actions of the stringed instrument.

4. The method of claim 3, further comprising the steps of providing a cutout in a portion of the neck, and, mounting the assembly in the cutout.

5. A stringed musical instrument comprising an apparatus for adjusting string height of a stringed instrument, the stringed instrument having a body, a headstock, and a neck interconnecting the headstock and the body, comprising:

a) a cutout in a portion of the neck;

b) an assembly mounted in said cutout configured to raise and lower strings of the stringed instrument;

c) said assembly comprising a housing, said housing attached at a first end thereof to the neck for enclosing said cutout;

d) a nut providing support for said strings, said nut mounted on said housing;

e) a sliding member disposed within said housing, said sliding member having an upper sloped surface on which a bottom of said nut rests;

f) an adjustment member attached to a bottom of said sliding member and extending down through said cutout and extending out a bottom side of the headstock; and,

g) said adjustment member being movable rearwardly and forwardly along with said sliding member to raise and lower said nut riding on said sloped surface to raise and lower the strings for producing different string actions of the stringed musical instrument.

6. A stringed musical instrument comprising the apparatus of claim 5, wherein a knob is mounted on a bottom portion of said adjustment member, said knob extending below a bottom surface of said headstock, said knob adapted for receiving a digit of a user for moving said sliding member while playing said stringed musical instrument.

7. A stringed musical instrument comprising the apparatus of claim 6, wherein said bottom surface of said headstock adjacent said cutout is marked with a graduated scale for visually referencing height of said strings above a first fret on said neck allowing said user to quickly and easily visually determine elevation of said strings of said stringed musical instrument.

8. A stringed musical instrument comprising the apparatus of claim 7, wherein said nut is seated within a receptacle transversely disposed relative to a top surface of said housing on said stringed musical instrument.

9. A stringed musical instrument comprising the apparatus of claim 8, wherein said adjustment member is threaded at an upper end thereof for releasably engaging said sliding member of said musical instrument.

10. A stringed musical instrument comprising the apparatus of claim 9, wherein said housing has a channel, said channel for receiving and permitting slide movement of said sliding member, said channel having an opening at an end thereof for removal of said sliding member from said stringed musical instrument.

11. A stringed musical instrument comprising the apparatus of claim 10, wherein a center line of motion of said sliding member is substantially parallel to said neck of said stringed musical instrument.

12. A stringed musical instrument comprising the apparatus of claim 11, further comprising an assembly for instantly adjusting the bridge type and bridge height of the stringed musical instrument at the bridge, comprising:

a) a base for being mounted to the front of the stringed instrument, said base defining an elongated receptacle disposed substantially transversely to the strings;

b) a bridge shaft, said bridge shaft being elongated and being rotatably disposed in said receptacle, said bridge shaft having first and second bridge portions for instantly changing the bridge type and bridge height while supporting the strings, thereby instantly raising or lowering the strings at the bridge wherein said second bridge portion is configured to elevate the strings higher in a relatively flat string plane and the said first bridge portion is configured to instantly lower said strings in a radiused or more curved string plane; and,

c) wherein said bridge shaft rotates between first and second positions, whereas in said first position said first bridge portion is disposed on the top for supporting the strings, whereas in said second position said second bridge portion is disposed on the top for supporting the strings.

13. A method for adjusting string height of a stringed musical instrument, the stringed instrument having a body, a headstock, and a neck interconnecting the headstock and the body, comprising the steps:

a) providing a cutout in a portion of the neck;

b) mounting an assembly in the cutout configured to raise and lower strings of the stringed instrument;

c) providing a housing in the assembly, the housing attached at a first end thereof to the neck for enclosing the cutout;

d) providing a nut to support the strings, the nut mounted on the housing;

e) providing a sliding member within the housing, the sliding member having an upper sloped surface on which a bottom of the nut rests;

f) providing an adjustment member attached to a bottom of the sliding member and extending down through the cutout and extending out a bottom side of the headstock; and,

g) moving the adjustment member rearwardly and forwardly along with the sliding member to raise and lower the nut riding on the sloped surface to raise and lower the strings for producing different string actions of the stringed instrument.

14. The method of claim 13, wherein a knob is mounted on a bottom portion of the adjustment member so that the knob extends below a bottom surface of the headstock, the knob adapted for receiving a digit of a user for moving the sliding member while playing the stringed instrument.

15. The method of claim 14, wherein the bottom surface of the headstock adjacent the cutout is marked with a graduated scale for visually referencing height of the strings above a first fret on the neck allowing the user to quickly and easily visually determine elevation of the strings.

16. The method of claim 15, wherein the nut is seated within a receptacle transversely disposed relative to a top surface of the housing.

17. The method of claim 16, wherein the adjustment member is threaded at an upper end thereof for releasably engaging the sliding member.

18. The method of claim 17, wherein the housing has a channel, the channel for receiving and permitting slide movement of the sliding member, the channel having an opening at an end thereof for removal of the sliding member.

19. The method of claim 18, wherein a center line of motion of the sliding member is substantially parallel to the neck of the stringed instrument.

20. The method of claim 19, further comprising the step of providing an assembly for instantly adjusting the bridge type and bridge height at the bridge of a stringed instrument, comprising the steps of:

a) providing a base mounted to the front of the stringed instrument, the base defining an elongated receptacle disposed substantially transversely to the strings;

b) providing a bridge shaft being elongated and being rotatably disposed in the receptacle, the bridge shaft having first and second bridge portions for instantly changing the bridge type and bridge height while supporting the strings, thereby instantly raising or lowering the strings at the bridge wherein the second bridge portion is configured to instantly elevate the strings higher in a relatively flat string plane and the first bridge portion is configured to instantly lower the strings in a radiused or more curved string plane; and,

c) wherein the bridge shaft rotates between first and second positions, whereas in the first position the first bridge portion is disposed on the top for supporting the strings, whereas in the second position the second bridge portion is disposed on the top for supporting the strings.

21. A method for adjusting string height of a stringed musical instrument having a body, a headstock, and a neck interconnecting the headstock and the body, comprising the steps of:

a) using a digit to slide an adjustment member rearwardly and forwardly for moving a sliding member mounted in a portion of the neck to raise and lower a nut supporting strings extending from the headstock to the body, the adjustment member extending from a bottom of the headstock; and,

b) using a graduated scale on a bottom surface of the headstock for referencing height of the strings above a first fret on the neck allowing a user to visually determine elevation of the strings.

22. The method of claim **21**, wherein the sliding member has a sloping, smooth upper surface on which the nut rides.

23. The method of claim **22**, wherein a center line of motion of the sliding member is substantially parallel to the neck of the stringed musical instrument.

24. The method of claim **23**, wherein the nut is seated within a receptacle, the receptacle disposed transversely to the neck.

25. A stringed musical instrument comprising an apparatus for adjusting bridge type and bridge height of a stringed instrument, comprising:

a) a base for being mounted to a front of the stringed instrument, said base defining an elongated receptacle disposed substantially transversely to the strings;

b) a bridge shaft, said bridge shaft being elongated and being rotatably disposed in said receptacle, said bridge shaft having first and second bridge portions for instantly changing the bridge type and bridge height while supporting the strings, thereby instantly raising or lowering the strings at the bridge wherein said second bridge portion is configured to instantly elevate the strings higher than said first bridge portion in a relatively flat string plane; and said first bridge portion is configured to instantly lower the strings at the bridge in a radiused or more curved string plane, and,

c) wherein said bridge shaft rotates between first and second positions, whereas in said first position said first bridge portion is disposed on the top for supporting the strings, whereas in said second position said second bridge portion is disposed on the top for supporting the strings.

26. A stringed musical instrument comprising the apparatus of claim **25**, further comprising a handle disposed on an end of said bridge shaft, said handle for being grasped by a user for rotating said bridge shaft.

27. A stringed musical instrument comprising the apparatus of claim **26**, further comprising a plurality of notches disposed on said first and second bridge portions for receiving the strings therein.

28. A stringed musical instrument comprising the apparatus of claim **27**, wherein said first bridge portion is radiused and said second bridge portion is substantially flat.

29. A method for adjusting bridge type and bridge height of a stringed instrument, comprising the steps of:

a) providing a base mounted to a front of the stringed instrument, the base defining an elongated receptacle disposed substantially transversely to the strings;

b) a bridge shaft, said bridge shaft being elongated and being rotatably disposed in said receptacle, said bridge shaft having first and second bridge portions for instantly changing bridge type and bridge height while supporting the strings, thereby instantly raising or lowering the strings at the bridge wherein the second bridge portion is configured to instantly elevate the strings higher than said first bridge portion in a relatively flat string plane; and said first bridge portion is configured to instantly lower the strings at the bridge in a radiused or more curved string plane,

c) wherein said bridge shaft rotates between first and second portions, whereas in the first position the first bridge portion is disposed on the top for supporting the strings, whereas in the second position the second bridge portion is disposed on the top for supporting the strings.

30. The method of claim **29**, further comprising the step of disposing a handle on an end of the bridge shaft for being grasped by a user for rotating the bridge shaft.

31. The method of claim **30**, further comprising the step of disposing a plurality of notches on the first and second bridge portions for receiving the strings therein.

32. The method of claim **31**, wherein the first bridge portion is radiused and the second bridge portion is substantially flat.

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